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ABSTRACT

Twenty third-grade children, all of whom scored below 90% accuracy in word recognition and comprehension at grade level, served as subjects in an investigation of the effects on reading fluency of four attentional activities: repeating directions, listening to a story paced or stimulated at 225 words per minute while reading the story, learning words, and answering questions. A case study approach was used to reveal individual data over four data points of one year. Treatment consisted of five one-week phases involving consistent attentional controls; each phase used materials at a successively lower reading level, and word recognition and comprehension scores were obtained in all phases. After succeeding in one of the phases, students were tested at grade level; if criteria were not met, they were moved to a lower grade level for further training. Analysis of the results indicated that, by the end of the study, 11 pupils had achieved at least 90% accuracy in word recognition and comprehension at grade level and that some of the remaining pupils had also shown growth. Improvements were found to transfer to other aspects of language learning, such as listening comprehesnion, reading fluency, ability to produce language, recall of words in temporal order, and vocabulary skills, but not to standardized silent reading measures. (GW)

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STIMULATED READING FOR DISFLUENT ELEMENTARY READERS

A PAPER PRESENTED

TO

THIRD ANNUAL AUSTRALIAN READING CONFERENCE

Melbourne, Australia, 28-31 August, 1977

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Stimulated Reading for Disfluent Elementary Readers, a paper presented to Third Australian Reading Conference, Melbourne, Australia, 28-31 August, 1977 by Christine W. Lucas, Elementary Education, McGill University, Montreal, Canada.

The present research selected as its basic area for investigation the use of attentional controls with stimulated reading in the listening-viewing center as a method for training pupils to read fluently. This study asked the following questions:

1. Do attentional controls provided for disfluent readers in Grade 3 lead to fluent reading in the listening center?
2. Do improvements that occur in stimulated reading generalize to standard measures of reading achievement?
3. Do improvements that occur in stimulated reading generalize to other aspects of language development?

Attentional Controls

Four attentional tasks were chosen to reveal the relationship between the attentional activities and reading fluency. The four attentional controls were (1) repeating directions, (2) listening to the story paced or stimulated at 225 wpm while reading the story, (3) learning words, and (4) answering questions. These tasks of attentional controls were based upon several characteristics of Rothkopf's Class I, II, and III mathemagenic activities (Rothkopf, 1970).

The attentional control provided a structure that supported learning through orientation to task, order, set and provision for achievement. The precise directions (listen, read, learn, answer) focused attention toward what was to be learned.

The attentional strategy provided for response to stimuli through interaction with the directions and materials. The pupil responded to learning activities which provided practical cues similar to the general reading task. The pupil was offered an opportunity to transfer his learning from the training condition

to the reading task. His skills and habits, as evidenced on the criterion-referenced tests, could be transferred to standardized tests. It was assumed that any significant results would attest to the success of stimulated reading in the listening center as a training for reading fluency.

STIMULATED READING

Stimulated reading is reading which is guided by an auditory input of the same material as the printed material. Various patterns and procedures have been used in recent investigations of pace with listening and reading (CRCR Newsletter, 1968-1974; Foulke & Sticht, 1969). The research has established that the speed of auditory input is most efficient at speeds varying from 200 words per minute (wpm) to 400 wpm, when a diminishing effect in comprehension appears (Foulke, 1968) and others. This study used a mild compression of 25% (or 225 wpm), a speed which falls within the limits of comprehension, but remains slightly ahead of the normal speech of 90-175 wpm (Sticht, 1969). This speed was thought to support fluent reading whereby the reader must blend his orthographic knowledge with his syntactical and semantic knowledge, and simultaneously construct meaning at a rate ranging from 100 wpm to 400 wpm (Karlin, 1971; Neisser, 1967; Norman, 1968; Smith, 1971).

The integration of auditory and visual information thorough listening-reading activities has interested many investigators of learning theory. It would be inappropriate to review this field at this time. Rather, we would suggest that interested parties may find Attention and Performance, Bks. I-V, of value. We must, however, cite several studies which appear pertinent to this investigation in terms of the framework underlying the use of simultaneous listening-reading to promote reading fluency in the listening center.

Hsia (1968), suspecting that efficiency and dependability of learning via auditory-visual channels are largely determined by redundancy, used two forms of redundancy: (a) between-channel or information present in both the

auditory and visual channels in simultaneous presentation, and (b) constraint in the form of sequential redundancy of language which, he said, "facilitates information association, eases canalization and memory traces, curtails equivocation (error of omission), and reduces error" (p. 344).

Subjects lost the least infc mation, significant at .01 level, under the combined auditory-visual channels. Both communication efficiency and dependability of learning were higher in the combined channel than under either single channel treatment. Hsia attributed these findings to the constraint factor which transcended effects over both noise and channel. As he noted, "Only the AV treatment compensated to a greater degree the effects of the nonconstraint"(p.344).

The Hsia (1968) study leads to the assumption that information processing can be sustained and can be demonstrated by the pupil response. Information processed through the redundancy of audio-visual channel should help the learner to reach a unity of information. For disfluent readers, this system becomes a more efficient learning system. The pupils can rely upon the clues and cues of redundancy, as well as its constraint; they can rely upon the reinforcement of previous learning and experience in their listening and reading, with redundancy lending support to further learning.

Another study, pertinent to the aims of this investigation, pointed out that visual reaction time is improved in simultaneous auditory-visual events. In an experiment with an energy integration model where stimuli crossed modalities, Bernstein (1970) found that joint events were stronger than the single channel alone. On a second experiment, using stimulus-response patterns, he found that "when a change in energy level arises from two sources in near synchrony, the net effect is larger than when the change occurs in a single modality alone" (p.26).

According to Bernstein, the slow peripheral sensory system can be activated with simple motor responses because several muscle groups are involved. To make the transition from information input to information output, the inertia of the

organism (in this case, the reader) must be overcome swiftly. The arousal component can prepare the reader to attend and to respond to stimuli, providing there are similarities between arousal and the task demanded.

J. Gibson (1966) has said that the nervous system is akin to a resonator whereby the reception of information serves as a reinforcement for adjustments that the sensory organs must make during arousal. While the arousal is taking place, the registration of information reinforces the neural activity in the brain; thus, "the perceiver is a self-tuning system" (p.271).

Quite simply, the learner is able to store information received at this point by reinforcement from the sensory organs. The double stimuli of hearing and seeing at the same time should arouse a stronger response to stimuli than either stimuli alone. The application of speed to the listening-reading technique is a logical strategy to improve the learning task. The reader must attend and respond to the stimuli; he must structure and order both himself and the material. The interaction between the learner and the media can be detected and enhanced to promote learning.

Surely research has placed sufficient emphasis upon auditory-visual integration to accept as fact that multi-channel presentation does promote learning in the discipline of reading. When the auditory and visual images are combined through communication and representation channels to run parallel to each other, inter-sensory integration becomes a specific method for attentional and informational control.

At this point, the responsibility shifts to the educator who, through management of the instructional materials, guides the learner to success.

Research Model

In part, this case study model was based upon the Goldstein-Scheerer (1964) design which found that the efficient person was capable of both concrete and analytic behaviors, whereas the inefficient person was confined to concrete

behaviors. To identify the efficient or fluent readers from the inefficient or disfluent readers, attentional controls and simplification of reading levels were considered concrete aids. The efficient readers would use the concrete aids, and derive the rule or principle of unification of reading processes. They would demonstrate their learning by meeting criteria. The disfluent readers, on the other hand, would use the concrete aids but would be unable to derive the rule or principle or unification of the reading processes. They would not meet criteria.

The case study method was deliberately chosen to reveal individual data over 4 data points of one year. It was expected that the analysis of sequential information would provide an integrated picture of individuals who could represent a wider population and, thus, permit meaningful generalizations to a wider population.

This case study design provided for modification of procedures, according to individual competency at reading levels. Attentional controls were imposed where needed. Stimulated reading materials and techniques promoted responses from the learner (Cronbach, 1967; Goldstein & Scheerer, 1964; Rothkopf, 1966, 1970). With the instructional techniques so developed and administered, weekly skill acquisition and information gain was measured on criterion-referenced tests (Carver, 1970); furthermore, the amount of retention and the transfer of skills by the individual pupil was measured from standardized tests.

The treatment consisted of six Phases. In Phase I, with grade level reading materials, the only attentional control was stimulated reading. In Phases II through VI, consistent attentional controls of repetition of directions and following the line of print were used. In addition, the concrete aids of lowered reading levels were used to promote response. Word recognition and comprehension scores were obtained in all Phases.

Phase I (desired goal)	Grade 3.5 reading; no overt controls
Phase II	Grade 3.5 reading; controls
Phase III	Grade 2.9 reading; controls
Phase IV	Grade 2.5 reading; controls
Phase V	Grade 21. reading; controls
Phase VI	Grade 1.5 reading; controls

The deliberate manipulation of attentional controls and materials in sequence established the functional level of the individual reader or the relationship between the treatment and the level at which the pupil could benefit from the use of stimulated reading. The observed behaviors and responses of the individual pupils were later compared with a stable baseline of performance (Sidman, 1960).

Each Phase represents one week of training over three trials in each Phase. These levels were used because they represent terminal points of instruction: end of year, middle of year, beginning of year.

All pupils entered the treatment at Phase II and moved from Phase to Phase, depending upon their skills to meet criteria in word recognition and comprehension at grade level. When the pupils did succeed in a lower Phase, they were returned to their expected reading level in Phase I. If they had profited from the treatment, the pupils demonstrated efficiency by meeting criteria 90% accuracy in word recognition and comprehension at Phase I and left the study. If the pupils failed to meet criteria in Phase I, they demonstrated they had not learned sufficiently from the treatment and were returned to Phase III, with attentional controls, plus a lowered grade level.

Because of interaction between behavior, the treatment and the materials, and because the pupils were chosen randomly, the individual results were at variance. As Sidman (1960) noted, "Averaged data might hide the discrepancies, but the individual data will reveal their magnitude and importance" (p. 165).

At the same time, a profile analysis of the individual data revealed the effects of the procedures which might have been hidden in the group data. Post hoc groups were formed on the basis of pupils meeting criteria in Phase I. The individual data were grouped,averaged, and mean scores derived from each group. All data were reported for individual pupils, for the post hoc groups, and for the total group.

As the profiles and their relevancy to the effects of the treatment were analyzed, the emerging patterns of behavior allowed in-depth description; in addition, the use of these patterns generated greater applicability of results to particular pupils, or groups of pupils in the classroom within the listening center.

Procedures.

Subjects

This study was restricted to Grade 3 pupils because it was recognized that Grade 3 is the link between basic skill instruction in the primary grades and the application of more basic skills to the accurate reading performance demanded in later childhood. Prior to Grade 3, the pupil has been learning to read and has been nurtured mainly through narrative reading. After Grade 3, the pupil must read to learn the ever-widening concepts of content area materials, presented through more complex reading material. At the same time, the pupil spends a decreasing number of hours in reading instruction.

Two heterogeneously-grouped grade 3 classrooms, with a total of 75 children from a lower-middle class elementary school in Québec, served as resource.

All pupils were screened in Fall semester with a Grade 3.5 level story administered under stimulated conditions in the classroom listening-viewing center. Pre- and posttests in word recognition and comprehension were administered. Four pupils reached criteria at 90% accuracy in both word recognition and comprehension. Designated Group A, these pupils did not participate in the training

procedures and are not discussed in this study.

From the remaining group, 20 Grade 3 pupils were chosen randomly for active participation in the study.

Materials

Complete stories of 800-1900 words in length were selected for five to six minute presentations. Stories ranged in difficulty from Grade 1.5 to 4.1 reading level according to formula (Fry, 1968). All stories were typed and double spaced on 8½ x 11 bond paper. All materials, including instructions, were recorded, then compressed to 225 wpm. The total time for directions, story, and comprehension questions averaged less than ten minutes.

Word recognition lists of 20 words used three or more times in each story were chosen as pre and posttest items. These were typed on 2 x 5 cards and handflashed once at the first session of each week, thereafter as posttest. The cards were exposed for a maximum of two seconds by stop watch.

Ten comprehension questions were asked at the end of each story. These were answered on response sheets supplied to the pupil.

Each phase consisted of pre-story word recognition test to orient attention to reading, the story activity, and the comprehension test. A poststory word recognition test was given, using the same word list.

At each level and for every week new stories were used at the comparable grade level. This was to control for additional learning as a result of familiarity with the text. The story was usually heard on Monday and Tuesday, with the retention test on Thursday. Otherwise, the story was heard on Tuesday and Wednesday, with retention test on Friday.

Daily Procedures

Each phase had consistently taped directions at the beginning of a story.

"Today your task is to listen to the story, read the story at the same time, learn new words, and answer questions." At the close of the taped story, the oral taped instructions were consistent. "Take your pencil and answer sheet and prepare to answer questions. The questions are on the tape. Make a mark in either the Yes column or the No column. Ready? Begin."

All pupils entered the treatment with attentional controls. These controls included stopping the tape immediately after the directions were heard. The pupil was asked, "What are you to do?" If the pupil could repeat the directions in sequence of listen, read, learn, answer, the pupil was allowed to continue with the story. If the pupil could not repeat the directions in sequence, the tape was rewound and the pupil instructed to listen again. This procedure continued until the pupil could repeat the directions with accuracy. Tallies were kept of the number of times the tape was stopped. These tallies were considered restarts to attention (RA) and were used as attentional measurement.

The exact repetition of rule served to overcome pupil inertia. The internalization of the rules served as an arousal technique, a thought structure technique, and immediate feedback to the pupil from himself. As Anderson (1970) pointed out, pupils do not necessarily attend when immediate feedback is presented in programmed instruction. The responsibility for encoding and repeating directions was shifted to the student to facilitate learning. Also, the verbalization of directions helped to arouse images and ideas, thereby establishing relationships and meaning between previous and new experience.

Once the reading began, the pupil was expected to follow the line of print. If the pupil did not, the tape was stopped and the pupil was asked, "Where are you reading?" If the pupil could not point to the place on the line, the tape was rewound, the pupil instructed to listen and find his place. This control continued until the pupil found the correct line. The pupil was then

instructed to place a finger under the line of print and follow the story while listening. This control served as auditory-visual tracking for sequence and directionality. A talley was kept of the number of times the tape was rewound.

When the pupil met criteria on the retention test, the pupil moved to a story at grade level. If criteria was met, the pupil moved out of the study. If criteria was not met, the pupil was moved to a lower grade level for further training.

The last week of the study all pupils remaining were placed at grade level. This last procedure was included to assess the differences in attentional control and achievement between entry behavior and terminal behavior under the training conditions.

Data Collection

In the weeks prior to the treatment, baseline data was collected to reveal traits of stability and generality. The baseline data consisted of raw scores, standard scores, grade equivalency and mean and standard deviation scores. Direct measurement and observation of individual and group behavior were part of the study; therefore, frequency responses and measures were analyzed by means, standard deviations, and t tests. The mean performance curves and other data arrays gave empirical data to determine the individuals and groups which might benefit from stimulated reading activities.

Results and Discussion

Table indicates the total number of pupils and the week in which each pupil met criteria in the training sessions with stimulated reading in the listening center. Post hoc groups were formed as the pupils met criteria and were released from the study. The table also indicates the number of pupils who did not meet criteria and who remained unsuccessful at the end of Week 6.

TABLE 1

Post Hoc Groups on Mastery and Release from Study
Roman Numerals Represent Phase Number
Being Used During Week

Pupil	1	2	3	4	5	6	End
B1	II	III	I	out			
B2	II	III	IV	I	out		
B3	II	III	IV	I	out		
C1	II	III	IV	V	I	out	
C2	II	III	IV	V	I	out	
C3	II	III	IV	V	I	out	
C4	II	III	IV	V	I	out	
C5	II	III	IV	V	I	out	
D1	II	III	IV	I	III	I	out
D2	II	III	IV	I	III	I	out
D3	II	III	I	III	IV	I	out
E1	II	III	IV	V	VI	I	remained
E2	II	III	IV	V	VI	I	remained
E3	II	III	IV	*	V	I	remained
E4	II	III	IV	I	III	I	remained
E5	II	III	IV	V	VI	I	remained
E6	II	III	IV	V	VI	I	remained
E7	II	III	IV	V	VI	I	remained
E8	II	III	IV	V	VI	I	remained
E9	II	III	IV	I	III	I	remained

* absent

Table 1 shows that, at the end of the study, 11 pupils had met criteria of 90% accuracy in both word recognition and comprehension at grade level. These pupils became the fluent readers of Groups B, C, and D. The remaining pupils did not meet criteria at any grade level and remained disfluent readers in Group E.

Table 2 illustrates the wide range of achievement among the post hoc groups. The weekly performances for word recognition and comprehension tasks show that many pupils with high initial word recognition scores met criteria

and passed out of the study. On the other hand, those pupils who were unable to accurately (less than 75%) identify words were unable to reach criteria on both word recognition and comprehension.

TABLE 2

Mean Scores on Word Recognition
Comprehension, and Restarts to Attention

Group	n	Week 1	2	3	4	5	6
B	3						
WR		94	99	93	99.5		
C		60	66	91	90		
RA		7	3	0	0		
C	5						
WR		95	92	95	95	91	
C		48	49	78	88	88	
RA		7	5	3	2	0	
D	3						
WR		95	96	95	99	93	98
C		77	86	94	79	82	90
RA		5	5	6	2	1	
E	9						
WR		61	65	74	72	62	55
C		44	63	72	76	74	78
RA		22	14	9	6	3	

All groups, except Group E, entered and maintained word recognition at 90% accuracy. All groups, Except Group E, met criteria of 90% in comprehension. It should be noted that Group E was approaching criteria in comprehension during the last week of training. The scores from Table 2 suggest that pupils can be trained to attend to the task. As the attentional restarts approached zero, the comprehension scores rose. Even so, Group E never developed consistent responses, nor did the group ever meet criteria at any level. Even with the aid of lowered grade levels, these pupils were unable to solve many of their reading problems during the experimental sessions. Yet, individual pupils

within the Group did make consistent growth over the six-week period.

It should be remembered that the case study method was deliberately chosen to reveal individual data which often discloses the importance of a problem. Table 3 does reveal the magnitude of the attention problem in an average reading group. The table presents the repetition of directions, called restarts to attention, in juxtaposition to the group mean.

TABLE 3

Group and Individual Mean Raw Scores
Per Session Per Week. Restarts to Attention

Group	Week 1 Session 1	2	3	Week 2 Session 4	5	6	Week 3 Session 7	8	9	Week 4 Session 10	11	12	Week 5 Session 13	14	15	Total Trials
B1	10	1	2	1	4	0	0	0	0							18
B2	2	1	1	0	0	0	0	0	0	0	0					4
B3	3	1	1	1	1	2	0	0	0	0	0	0				9
$\bar{X}$																10
C1	4	3	4	3	2	2	1	0	1	1	0	0	0	0	0	21
C2	4	3	3	1	1	1	1	1	1	1	1	1	0	0	0	19
C3	2	1	0	3	3	0	1	1	1	3	1	0	0	0	0	16
C4	4	5	0	3	3	1	3	1	2	1	0	0	0	0	0	23
C5	2	0	0	2	0	0	2	0	0	2	0	0	0	0	0	8
$\bar{X}$																17.4
D1	2	0	2	1	0	0	0	0	0	3	0	0	4	1	0	13
D2	3	2	3	2	7	4	2	3	11	2	1	0	0	0	0	40
D3	3	2	0	0	1	0	1	2	0	0	0	0	0	0	0	9
$\bar{X}$																20.6
E1	5	5	5	5	4	2	1	1	1	1	1	0	0	0	0	31
E2	19	15	10	17	4	0	3	6	0	3	6	0	9	0	0	92
E3	10	8	7	1	1	2	6	4	8	abs.			3			40
E4	8	8	10	7	6	10	1	4	1	5	1	6	2	0	0	69
E5	4	2	2	2	2	0	2	3	2	1	3	1	3	0	0	27
E6	7	6	8	11	7	6	10	5	5	1	1	0		0	0	67
E7	3	1	0	1	2	1	1	2	1	1	3	1	0	0	0	17
E8	15	10	2	4	2	2	3	2	0	1	1	0	6	0	0	48
E9	5	4	4	3	2	1	2	4	2	1	1	0	0	0	0	29
$\bar{X}$																47.7

The number of trials to attend to task varied with the individual. The most efficient output of information with Group B as well as the least efficient output of information with Group E suggests both attentional and skill development problems. The directions to attention, the maintenance of attention, and the completion of task suggest a management problem in the listening centre.

Until restarts to attention, B-1 never listened. His highly developed skills allowed him to disregard teacher directions and learn from the examples of others. As soon as he disciplined himself to listen and to attend to task, he was successful. The performance of E-2 was perhaps the most interesting. A girl of normal learning rate, she used 19 restarts and 31 minutes (stopwatch time) to process and respond to directions. Her classroom performance was equally lackluster but did improve toward the end of the experiment. The performances of C-1, E-4, E-8 and E-9 are of interest because, as multilingual children, they were capable of consistent performance when consistent demands were made upon them.

The differences between the fluent and disfluent readers were shown to be significant on the V-Test for Word Recognition. This test was devised by random selection of 50 words from the total number of vocabulary words used in the stories. The words were hand flashed. By groups, it was Group E whose apparent improvement (.001) influenced the scores of the total group (.05) in word recognition. The individual raw scores indicate the direction of change.

TABLE 4

Raw Scores: Number Correct of 50
V-Test Word Recognition

Subject	Pretest	Posttest
B1	44	48
B2	47	50
B3	36	49
$\bar{X}$	42.7	49.0
C1	35	48
C2	50	50
C3	42	50
C4	40	49
C5	39	50
$\bar{X}$	41.2	49.4
D1	42	50
D2	45	49
D3	50	50
$\bar{X}$	45.7	49.6
E1	24	36
E2	35	47
E3	24	42
D4	43	48
E5	19	34
D6	17	37
D7	12	41
E8	39	48
E9	33	48
$\bar{X}$	27.3	42.3

Since Groups, B, C, and D had already demonstrated skill in word recognition, it was assumed that this test did not measure adequately their skill development beyond Grade 3.9.

Among the unsuccessful pupils in Group E were several pupils who could not readily articulate words for fast sight word recognition. Slowness in articulation was a penalty under timed conditions. This appeared to be

either a speech deficit or a second language problem. Although these children never met criteria at any grade level, they were able to demonstrate increased comprehension. Certainly they appeared more attentive in the experiment and in the classroom.

Standard Measures of Reading Achievement

This study asked the question: Do the improvements that occur under stimulated reading generalize to standard measures of reading achievement? The performances on standard measures of reading achievement are illustrated in Tables 5 through 9.

Gates MacGinitie Primary Reading Tests

Table 5 indicates the standard scores, gathered over the period of one year at four data points, which were interpeted according to the appropriate norms for Primary C, Forms 1 and 2, and Survey D, Form 1M. Values of Table 10 were accepted as the amount of change needed for significance for each group (Manual, Gates-MacGinitie , 1965).

TABLE 5

Mean Standard Vocabulary and Comprehension Scores
by Groups: Gates-MacGinitie Reading Tests,
Primary C, Forms 1 and 2, Survey D, Form 1M

* significant gains according to Table 10, Technical Manual

Group	n	T_1	T_2	T_3	T_4
Total	20				
Vocabulary		50.1	49.0	52.0*	52.0
Comprehension		47.7	48.1	48.1	49.0
B	3				
Vocabulary		60.3	56.0	64.0*	60.0
Comprehension		57.3	59.0	57.0	55.0
C	5				
Vocabulary		54.0	56.0	58.2	55.0
Comprehension		49.0	52.0	49.0	51.0
D	3				
Vocabulary		57.3	53.3	58.0*	63.0*
Comprehension		57.0	60.0	57.0	58.3
E	9				
Vocabulary		42.2	41.0	42.0	43.0
Comprehension		40.1	42.0	42.0	41.3

As shown in Table 5, no clear pattern appears to demonstrate any overall effect of training upon silent reading measures of vocabulary and comprehension. The mean standard scores in both vocabulary and comprehension for all groups except Group E were generally above the standard mean of 50. Group E began and remained one standard deviation below the norm. These results would, however, appear to indicate capable reading habits for the entire group, except Group E.

The logical interpretation suggests that transfer did not occur, perhaps because of differences between the instructional behaviors or between test administrations, or because of differences between the two comprehension tasks.

The lack of transfer of improvements under stimulated reading to standard silent reading tests can not be explained on the basis of this study.

Spache Diagnostic Reading Scales

Figure 1 indicates the grade level ranges for the total and post hoc groups for auditory or listening comprehension as measured by the potential listening level of the Spache Diagnostic Reading Scales (Spache, 1963). Criteria of 75% accuracy in response is recommended under test procedures and was so accepted in this study.

(insert Figure 1 about here)

The demonstrated increase in listening comprehension, represented in the above scores, indicates an increase of one grade for the six week period for the total group, as well as for the post hoc groups B and C. Groups D and E appeared to make few gains. Group E did post higher scores at the lowest level of achievement.

The individual passage levels and the equivalent grade levels indicated that, while the individual scores support the trends in the group achievements, the performance of the second language pupils was again of special interest, namely C-1, C-4, E-4, E-8, and E-9.

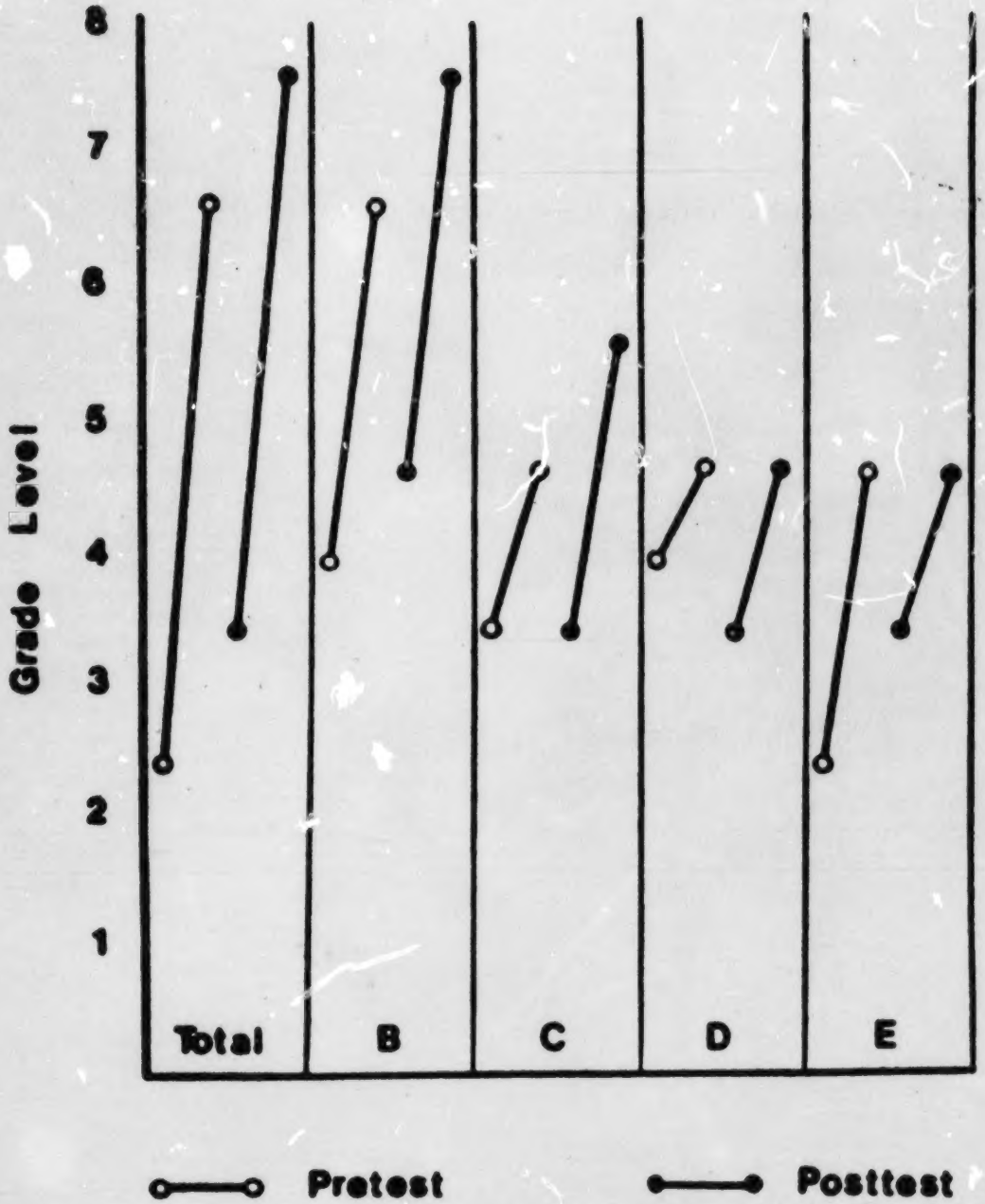

Fig. 1. Group mean scores, listening comprehension on Spache Diagnostic Reading Scales. First score represents range of pretest achievement. Second score represents range of posttest achievement.

Gray Oral Reading Test

Table 6 presents the grade level scores for both oral fluency and for the highest passage read with 75% comprehension. Grade level scores were computed according to the recommended procedures (Gray, 1967). The grade levels represent the level of pupil interaction with the oral word recognition and pronunciation.

TABLE 6

Grade Level Fluency; Grade Level Last Passage Read with 75% Comprehension; Pre- and Posttest Gray Oral Reading, Forms A and B

		Pretest		Posttest	
Group	n	Grade level fluency	Grade level 75% comp.	Grade level fluency	Grade level 75% comp.
Total	20	2.6	III	3.5	IV
B	3	4.5	IV	4.9	V
C	5	3.4	III	4.9	V
D	3	3.1	III	4.5	IV
E	9	2.0*	II	2.0**	III

* assigned score; obtained score too low to qualify
** earned score

By posttest, all groups had developed more speed and accurate word identification. At the same time, all groups demonstrated more rapid encoding of the visual or graphic input through their comprehension. These same patterns are evident in the individual scores as presented in Table 7.

TABLE 7

Individual Mean Scores: Grade Level Fluency and last Passage Read with 75% Comprehension: Gray Oral Reading Test, Forms A and B

Pupil	Pretest		Posttest	
	Grade Level Fluency	Grade Level Last Passage Read 75% Comp.	Grade Level Fluency	Grade Level Last Passage Read 75% Comp.
B1	5.4	III	4.6	IV
B2	5.4	V	9.3	V
B3	3.5	III	3.4	IV
C1	2.1	II	3.6	V
C2	4.8	IV	7.2	IV
C3	3.4	III	3.8	IV
C4	3.4	V	4.8	V
C5	3.1	III	3.6	V
D1	2.2	IV	5.1	V
D2	3.7	II	4.0	III
D3	4.0	V	6.4	V
E1	1.6	II	2.0	III
E2	2.1	III	2.0	III
E3	1.2	I	1.8	III
E4	2.0	II	4.4	III
E5	1.6	II	1.9	III
E6	1.2	Book I	1.6	I
E7	1.7	I	1.7	III
E8	2.6	II	3.2	II
E9	2.9	II	3.4	IV

Again the progress of second language pupils is of interest. C-1, C-4, E-4, E-8 and E-9 are multilingual children in English, French and Greek. D-1, a pupil with Caribbean dialect, is considered a balanced bilingual. Individually, these children were able to transfer improvements from training conditions to oral reading.

Other Aspects of Language Development

The language improvements made under the training conditions were measureable on other samples of language functioning.

Auditory Attention Span for Related Syllables

Elementary pupils must have control of their language if they are to succeed in the verbal environment of the classroom. Ability to accurately repeat a sentence is commonly accepted as evidence that pupils can be successful in a verbal environment (Clay, 1971). The Auditory Attention Span for Related Syllables (Baker & Leland, 1967) was used to assess the auditory attention of the pupils, their ability to produce language, and their skill in the recall of words in temporal order.

Table 8 reports the total group changes on sentence repetition performance over the duration of the study.

TABLE 8

Group Mean and Standard Deviation Scores:
Auditory Attention Span for Related Syllables;
Raw Scores: Possible Number Correct 129

Group	n	Pretest	Posttest	t
Total	20			
Mean		57.5	64.0	2.83**
S.D.		17.3	15.1	
B	3			
Mean		73.6	80.3	1.27
S.D.		13.7	13.5	
C	5			
Mean		58.4	67.4	1.31
S.D.		18.5	12.7	
D	3			
Mean		68.6	68.0	.94
S.D.		17.6	20.1	
E	9			
Mean		47.8	55.3	3.57 **
S.D.		9.5	6.6	

*p $<$ .01 **p $<$ .001

Table 8 indicates that Group E, the least efficient group, demonstrated significant differences between pre and posttest scores on this test. At pretest, Group E not only reversed time sequences, but also eliminated words, phrases and clauses. They often appeared unaware of any resultant changes in contextual meaning. By posttest, nearly all pupils had developed control of time sequences and phrases. Their changes in behavior in auditory recall of complete sentences was sufficient to influence the performance of the entire group. Since Groups B, C, and D were already skilled in sequential recall and language production, it was concluded that this test did not assess their skills.

The increased skill in pronunciation and remembering sentence units suggests that pupil improvement in word articulation and verbal response may be explained by a consolidation of word attack skills. It seems obvious that stimulated reading served as a model for the synthesis of word attack skills and appeared to have contributed to the development of the basic skills.

Verbal Opposites

Table 9 presents the results from the pre and post study administration of the Verbal Opposites test (Baker & Leland, 1967). As a paradigmatic test, the test demanded a one-word response in the same grammatical category as the one-word stimulus, thus using contrast in conceptual relationships to assess the depth of vocabulary, as well as to indicate the growth in word usage.

TABLE 9

Group Mean and Standard Deviation Scores:
Verbal Opposites: Raw Scores:
Possible Number Correct 96

Group	n	Pretest	Posttest	t
Total	20			
Mean		31.0	42.6	10.53 **
S.D.		9.3	6.6	
B	3			
Mean		40.6	50.3	2.60
S.D		7.0	5.3	
C	5			
Mean		37.4	45.0	3.31 *
S.D.		6.5	3.0	
D	3			
Mean		35.3	47.3	5.19 *
S.D.		4.6	3.3	
E	9			
Mean		22.7	37.1	13.43 **
S.D.		4.2	4.4	

*p $<$ .05 **p $<$ .001

The data from this test shows no gain for Group B, already highly skilled in verbal power. Again, it is Group E, with some changes in Groups C and D, which influenced the differences for the total group.

An analysis of the pre and post-study scores revealed some unexpected strengths and weaknesses on the antonym measure. Group B associated such abstract ideas as victory-defeat and cruel-kind; Groups C and D associated blond-brunette and pretty-ugly. The least skilled group associated items such as light-heavy, but they were unable to associate lost-found and wet-dry. Yet on the posttest, these Group E pupils equalled the entry levels of Groups C and D, indicating again that the lowest achievers could be trained to higher levels of achievement.

Moreover, the concrete and imprecise use of language by the inefficient pupils may have restricted development of basic language skills necessary for successful reading. Similarly, this imprecise use of language may have been true for the second language pupils who nearly doubled their scores in the six-week training period.

The statistical evidence of the language growth that occurred under training conditions was accepted as substantive proof that the improvements which occurred under stimulated reading did transfer and generalize to other aspect of language learning.

Summary of the Findings

The present study supports the use of stimulated reading in the listening center to develop fluent reading. The results indicate that stimulated reading has practical significance for the development of supplemental reading programs in the classroom.

The study provides empirical evidence that stimulated reading helped Grade 3 pupils to organize existing skills and thus function more competently When one views these reading activities from the teaching point of view, one finds that the integration of the reading task within the auditory-visual framework supplies a structure sufficient for many pupils to reach mastery. When these activities are viewed from the learning point of view, one finds that the listening-reading activities aroused the pupils, helped them to focus their attention to the task, and promoted responsibility and independence in learning.

The study provides empirical and descriptive evidence that the use of stimulated reading may permit identification of pupils who can be trained to fluency. The present study implies that, once pupils have learned to attend to the task and have developed accurate responses to directions, they may begin to organize their auditory-visual information through stimulated reading.

As the pupils establish routines and rules, they utilize the structure which then seems to permit them to become more competent in their reading skills.

The use of stimulated reading in the listening center as an enrichment tool should be especially useful for the language deficit pupils. When pupils have a reasonable model of oral reading fluency, they are free to overcome the structure of background and language deficit. They are free to test their acquisition of language against the model of competent language presented on the tape. They are free from overt classroom corrections which they may interpret as a castigation of their own language. They are free to read and to become independent in their own reading.

The use of stimulated activities is especially important for the multilingual pupils. Too often, these pupils are relegated to the lowest reading group in the class. In those cases, their only model for the reading act is the inefficient and disfluent reading of their peers. In the listening center, these pupils could use materials which provide a reasonable model of fluent speech. They might develop greater efficiency in association and integration of the new language.

Trends

The research into the use of attentional controls through repetition of directions and stimulated reading is continuing in Quebec with 500 pupils in intact classes in the English and French systems. Results of the first year are not yet available but should be available by December, 1977. Results of the second and third years will be made available subsequently.

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